

Optical modules and optical fibers between BBU and PTN



AI Overview

Optical modules and fibers form the backbone for high-speed, reliable connections between BBUs and PTNs or RRUs, supporting CPRI/eCPRI and PTN services with scalable bandwidth. Optical Modules

1. 10G and 25G SFP Modules: In 2G/3G/4G networks, 10Gbps SFP+ modules are typically sufficient for CPRI interfaces, while 5G networks often require 25Gbps SFP28 modules to support eCPRI and higher bandwidth demands. Example: 10G SFP+ CPRI SR modules use 850nm VCSEL lasers and PIN photodetectors, supporting multimode fiber transmission up to 300m (OM3). 25G SFP28 modules support 70–100m on OM3/OM4 fibers.
2. GPON SFP Modules: GPON SFP modules integrate point-to-multipoint (P2MP) technology, allowing a single fiber to serve multiple endpoints, which can save fiber resources between BBU and RRU. GPON SFP OLT modules are installed at the central office, while ONU modules are deployed at the RRU or subscriber end, supporting bidirectional transmission over a single fiber with downstream 2.5 Gbps and upstream 1.25 Gbps.
3. WDM-Based Modules: CWDM and DWDM optical modules allow multiple wavelengths over a single fiber, enabling fiber resource optimization and supporting multiple RRUs from a single BBU pool. These modules are essential in fiber-scarce areas or for long-distance C-RAN deployments, supporting distances up to 40 km or more with proper power budgeting.

Optical Fiber Deployment

1. Direct Fiber Connections: Traditional BBU-to-RRU connections use point-to-point multimode or single-mode fibers, often with 3–6 fibers per BBU-RRU pair. Hybrid fiber cables can combine power and fiber in a single run, reducing tower congestion and simplifying installation.
2. Fiber-Saving Techniques: Using GPON SFP modules or WDM multiplexing reduces the number of fibers required, allowing multiple RRUs to share...

Article Content

Remote radio unit (rru) and base band unit (bbu)

In a centralized, cooperative, or cloud radio access network (C-RAN), the base transceiver station (or eNodeB) functionality can be subdivided between a base band unit (BBU) processing pool and a

PTN optical modules and BBU optical modules

The optical module serves as a crucial component in optical fiber communication systems, operating at the physical layer, which is the lowest layer in the OSI model. An. Which optical modules are

Typical Connection Solutions and Fiber Optical Module

Usually, the 10G/25G grey light optical modules with a short transmission distance are applied for connecting AAU/DU with WDM/OTN/SPN.

Understanding Baseband Units in Telecom

BBU (Baseband Unit) processes original signals in the base frequency band before modulation. It has a digital signal processor to convert

What type of pigtail should be used between BBU and PTN ...

Choose pigtails for permanent splicing into your fiber backbone. Executive Summary: A fiber optic pigtail is one of the most commonly specified yet least understood components in structured cabling. Get

OptiX PTN 910E-F One-Page Installation Guide 02

The disc is the Product Documentation of OptiX PTN 910E-F Packet Transport Platform of PTN Series V100R009C10 version. It includes the following product manuals: Product Description, Hardware

What is the 5G Optical Module Solution

The current 5G fronthaul technical solutions mainly include optical fiber direct connection, passive WDM, active WDM/OTN, etc. The optical fiber

Do you know how optical modules are used in base stations?-ETU

In this article, ETU-LINK will introduce the base station under the communication triangle tower and the application of optical modules in the base station. The communication triangular tower is composed

The difference between optical modules and fiber optic

Optical modules and fiber optic transceivers are both important devices in fiber optic communication systems, is there any difference between

What type of pigtail should be used between BBU and PTN

In this guide, we will break down what fiber optic pigtails are, how they differ from patch cords, what types exist, and how to select the right one for your project.

[BBU Subrack Installation Guide | PDF | Optical Fiber](#)

1) The document provides instructions for installing a BBU subrack, boards and modules, GPS SPD, cables, GPS antenna system, and checking installation.

[Understanding BBU, RRU, and AAU in telecom networks](#)

Below is a breakdown of the BBU (Baseband Unit), RRU (Remote Radio Unit), and AAU (Active Antenna Unit)—their roles, placement, connectivity, and relevance

[Huawei BTS 3900 Hardware Structure | PDF](#)

The document describes the hardware structure and components of the Huawei BTS3900 base station system. The key points are: - The BTS3900 system

[Huawei OptiX PTN Series Quick Installation Manual](#)

View and Download Huawei OptiX PTN Series quick installation manual online. Packet Transport Platform. OptiX PTN Series network router pdf manual download. Also for: Optix ptn 7900-24, Ptn

[All Kinds of Fiber Optic Patch Cords – SC, LC, FC, ST](#)

Learn about SC, LC, FC, and ST fiber optic patch cords, their uses in FTTH, telecom, and data centers, and how to choose the right type.

[The Most Comprehensive Guide Of Optical Modules](#)

Explore the ultimate guide to optical modules. Learn types, functions, performance metrics & how to choose the right module for your fiber network.

[PTN optical modules and BBU optical modules](#)

In this blog, ETU-LINK will talk about 4G base stations and common types of optical modules. The base station can be divided into two modules: the RRU for transmitting signals and the BBU for processing ...

[Cellular Network Infrastructure: From Antenna to BBU](#)

Here's the sequence of how signals travel from an antenna to the Baseband Unit (BBU), including key information about each step and associated hardware.

[Understanding RRU in Telecommunications | PDF](#)

RRU functions include transmitting and receiving signals, providing connectivity between user equipment, and interfacing between optical and electromagnetic

[Do you know how optical modules are used in base](#)

The transmission carriers connecting BBU and RRU devices are optical modules and optical fibers. In 2/3/4G networks, 10Gbps optical modules are generally

Which Optical Modules Are Commonly Used In 4G Base Stations?

In this blog, ETU-LINK will talk about 4G base stations and common types of optical modules. The base station can be divided into two modules: the RRU for transmitting signals and the BBU for processing

Understand AAU, RRU, BBU in one article

Continuing to develop, the RRU began to go up the tower, the BBU and the RRU were connected by optical fibers, and the RRU and the antenna

What is RRU and BBU

Via optical fiber The RRU connects to the BBU, forming a new “distributed At the base of the tower locates BBU while the RRU is at the top of

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